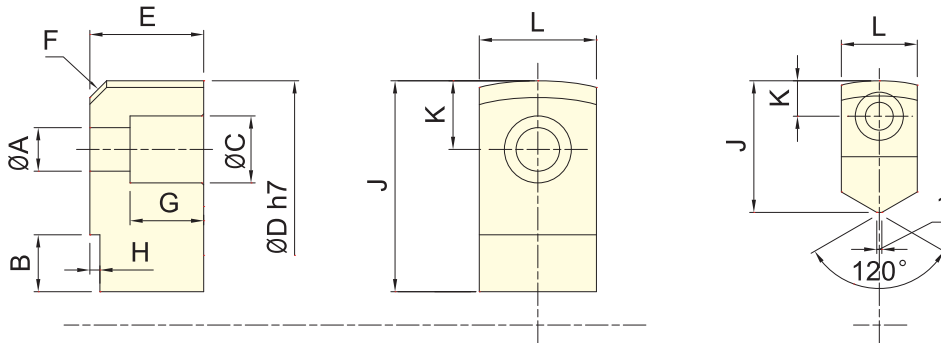


\* Subject to technical changes.

### Dimensions

Model	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12	S-13	Serration Pitch	Matching Chuck	3 Jaw Weight (kg)
SJ04	52	23	23	10	5	10	14	28	9	14	13	M8	3	1.5×60°	3H-04, 3P-04	0.5
SJ05	62	25	30	10	5	10	14	38	9	14	18	M8	3.5	1.5×60°	3H-05, 3L-205, 3P-05, 3M-05	0.8
SJ06	73	31	36	12	5	15	20	38	11	17	24	M10	14	1.5×60°	3H-206, 3L-206, 3P-06, 3M-06	1.5
SJ08	95	35	37	14	5	24	25	46	13	19	22	M12	16	1.5×60°	3H-208, 3L-208, 3P-08, 3M-08	2.4
SJ10	110	40	42	16	5	30	30	50	13	19	27	M12	18	1.5×60°	3H-10, 3L-210, 3P-10, 3M-10	3.7
SJ12H	130	50	50	21	5	40	30	60	18	26	33	M16	23	1.5×60°	3H-212, 3L-212, 3V-12, 3P-12, 3M-12	6.3
SJ12P	130	50	50	18	5	40	30	60	16	23	33	M14	23	1.5×60°	3P-12	6.5
SJ15H	165	62	62	22	8	37	43	85	21	32	38	M20	-	1.5×60°	3H-15, 3H-18	12.6
SJ15P	165	62	62	25.5	8	37	43	85	21	32	38	M20	-	1.5×60°	3H-15, 3H-18, 3L-15, 3P-15, 3P-18, 3V-15, 3V-18	12.5
SJ21	180	65	70	25	9	40	60	80	21	32	45	M20	-	3.0×60°	3H-21, 3H-24, 3P-221, 3P-224, 3V-21, 3V-24, 3V-32	15.8

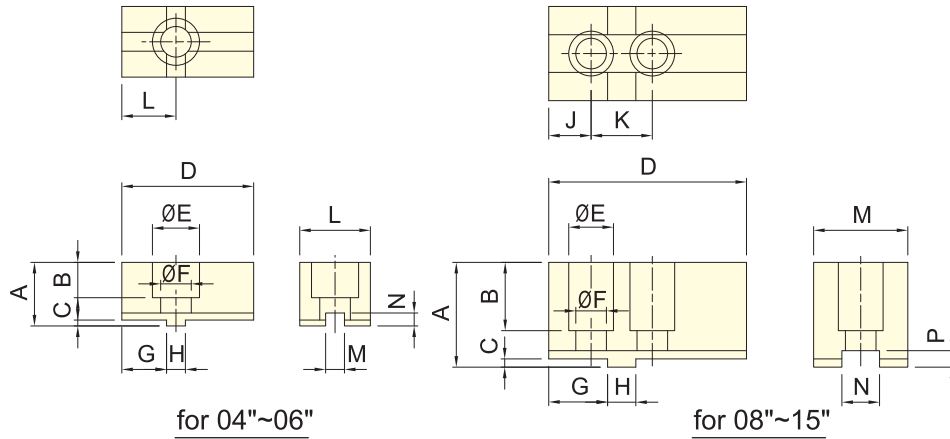


for 3U-203

\* Subject to technical changes.

### Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L
3U-203	5.5	11	9.5	66	12	C3	7	3	26	7	15
3U-204	6.6	11	11	84	17	C4	11	3	32	9.5	20
3U-205	9	13.5	14	108	20	C4	12	3	41.5	13	24
3U-206	11	15	17	129	30	C6	20	3	50	17	30
3U-208	13	17	20	156	34	C6	22	3	63	20.5	35
3U-210	15	20	22	187	39	C6	24	4	74	23	40
3U-212	15	18	22	234	44	C6	29	4	72	23	40



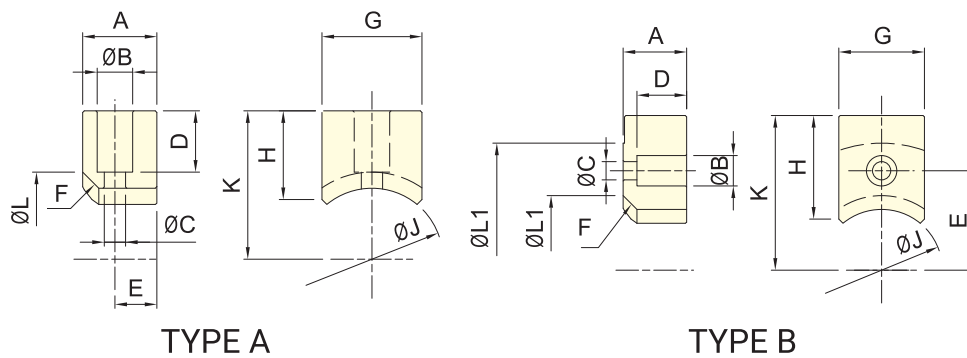
for 04"~06"

for 08"~15"

\* Subject to technical changes.

Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P
3D-04	19.5	13	2.5	52	17.5	11	18	8	-	-	22	25	8	5.5
3D-05	27	15	2.5	56	20	13	19	8	-	-	23	30	8	5.5
3D-06	34	21	3	70	23	15.5	22	10	-	-	27	40	10	6
3D-08	44.5	29	3.5	84	19	13	25	12	18	26	-	40	16	7
3D-10	49.5	32	3.5	100	22	15	30.5	15	22	32	-	50	18	7
3D-12	54.5	36	3.5	120	26	18	33.5	17	24	36	-	60	20	7
3D-15	60	40	5	165	26	18	50	20	40	40	-	70	24	10



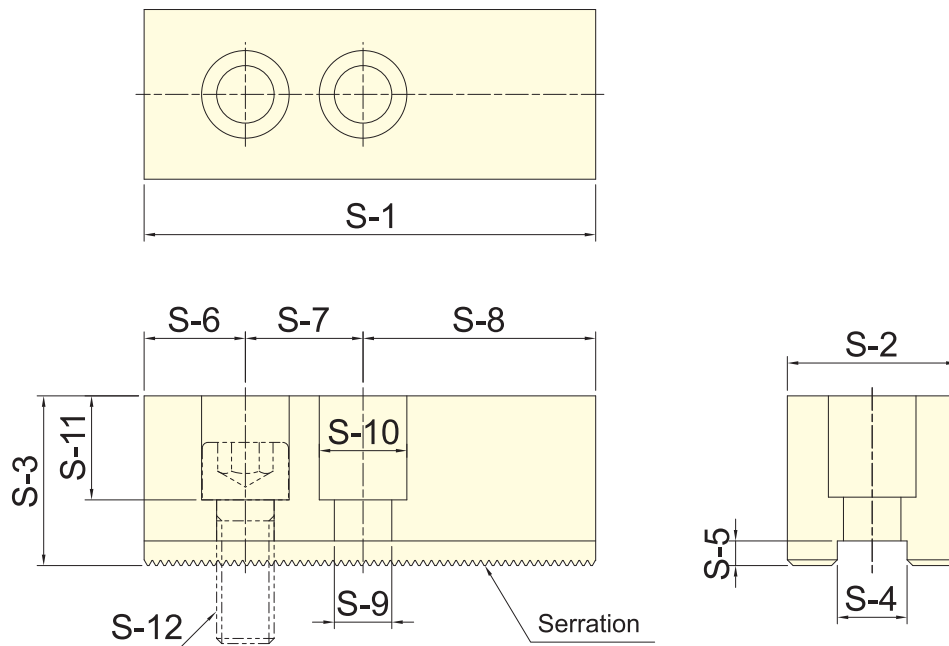
TYPE A

TYPE B

\* Subject to technical changes.

Dimensions

Model	A	B	C	D	E	F	G	H	J	K	L	L1	
3E-05	TYPE A	20	11	6.6	16.5	10	C5	25	22	29	34.5	39	-
	TYPE B	20	11	6.6	15	25.5	C5	25	30	29	42.5	39	69
3E-06	TYPE A	23	11	6.6	19	13	C5	31	27.5	44	46	54	-
	TYPE B	23	11	6.6	18	36	C5	31	37.5	44	56	54	92
3E-08	TYPE A	30	14	9	25	15	C6	35	36	50	56	62	-
	TYPE B	30	14	9	24	41	C6	35	56	50	76	62	112
3E-10	TYPE A	35	17.5	11	26.5	17.5	C5	40	40	60	64.5	70	-
	TYPE B	35	17.5	11	26	47.5	C5	40	71.5	60	96	70	129



\* Subject to technical changes.

■ Dimensions

Model	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12	Serration Pitch	Matching Chuck	3 Jaw Weight (kg)
SJ-145	165	62	62	25.5	9	37	43	85	21	32	38	M20	3.0×60°	AP-145, AP-185	12.2
SJ-185	165	62	62	25.5	9	37	43	85	21	32	38	M20	3.0×60°	AP-145, AP-185	12.2
SJ-230	180	64	70	25.5	9	40	60	80	21	32	45	M20	3.0×60°	AP-230, AP-275	16.1
SJ-275	180	64	70	25.5	9	40	60	80	21	32	45	M20	3.0×60°	AP-230, AP-275	16.1
SJ-320	210	75	80	30	9	40	60	110	26	38	55	M24	3.0×60°	AP-320, AP-375	24.7

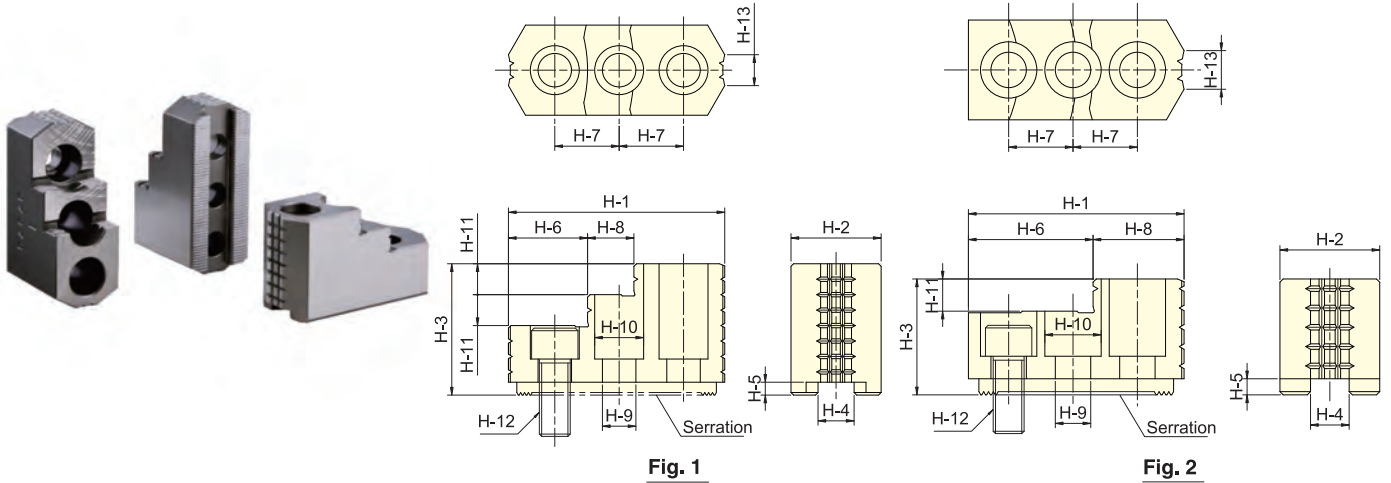


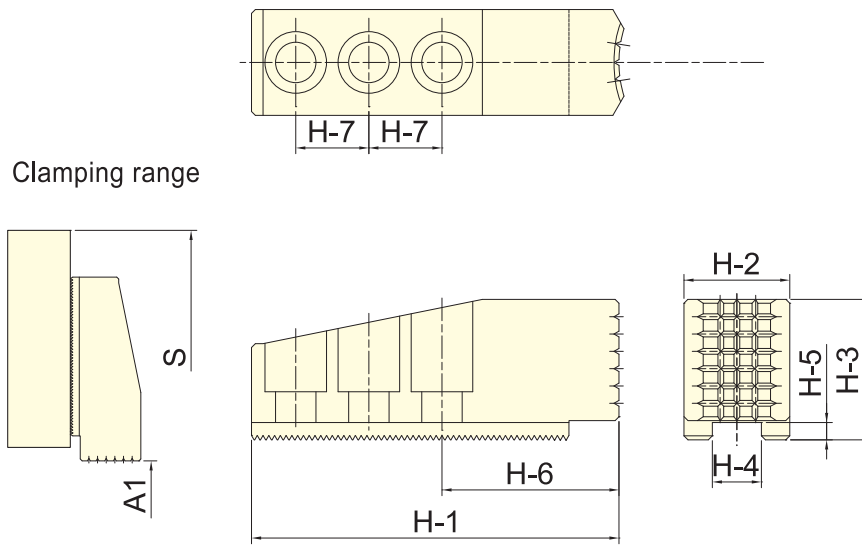
Fig. 1

Fig. 2

\* Subject to technical changes.

### Dimensions

Model	H-1	H-2	H-3	H-4	H-5	H-6	H-7	H-8	H-9	H-10	H-11	H-12	H-13	Serration Pitch	Matching Chuck	3 Jaw Weight (kg)	Reference Drawing
HJ05	53	23	27.5	10	4	30.5	14	22.5	8.5	13.5	10	M8	6	1.5×60°	3H-04, 3H-05	1.0	Fig.2
HJ06	67	31	35	12	5	39	20	28	11	17	12	M10	10	1.5×60°	3H-206, 3P-06	1.7	Fig.2
HJ08	86	35	51	14	5	31	25	18	13	19	12	M12	12	1.5×60°	3H-208, 3P-08	2.0	Fig.1
HJ10	99.5	40	54	16	5	43	30	17	13	19	13	M12	15	1.5×60°	3H-10, 3P-10	3.0	Fig.1
HJ12H	103	50	52	21	5	62.5	30	40.5	17	25	17	M16	30	1.5×60°	3H-212, 3P-12	3.5	Fig.2
HJ12P	103	50	52	18	5	62.5	30	40.5	15	22	17	M14	30	1.5×60°	3P-12	3.6	Fig.2
HJ15H	149	62	86	22	8	63	43	34	21	32	20	M20	43	1.5×60°	3H-15, 3H-18	9.6	Fig.1
HJ15P	149	62	86	25.5	6	63	43	34	21	32	20	M20	43	1.5×60°	3H-15, 3H-18, 3P-15, 3P-18	9.5	Fig.1
HJ21	159.5	80	90	25	9	104.5	50	55	21	32	40	M20	55	3.0×60°	3H-21, 3H-24, 3P-221, 3P-224, 3V-32	14.3	Fig.2

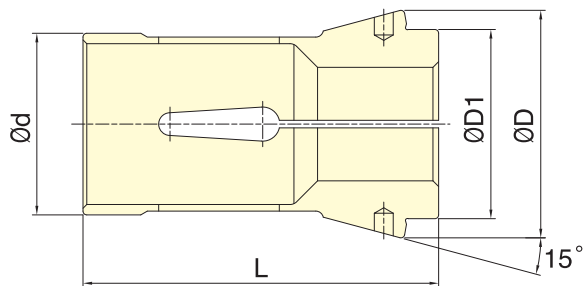


Clamping range

### Dimensions

\* Subject to technical changes.

Model	H-1	H-2	H-3	H-4	H-5	H-6	H-7	A1	S	Serration Pitch	Matching Chuck	3 Jaw Weight (kg)
HJ-145	191	55	73	25.5	9	92	38	28-120	420	3.0×60°	AP-145	12.5
HJ-145	191	55	73	25.5	9	92	38	28-155	460	3.0×60°	AP-185	12.5
HJ-145	191	55	73	25.5	9	92	38	60-235	535	3.0×60°	AP-230	12.5
HJ-145	191	55	73	25.5	9	92	38	105-280	580	3.0×60°	AP275	12.5
HJ-320	243	75	82	30	9	110	50	100-295	658	3.0×60°	AP-320	24.6
HJ-320	243	75	82	30	9	110	50	175-375	738	3.0×60°	AP-375	24.6



DIN 6343 Collet standard

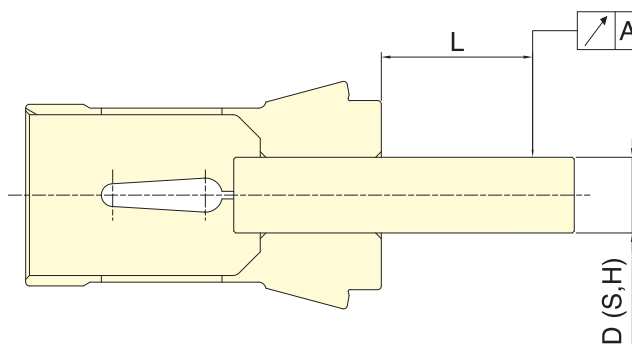
\* Subject to technical changes.

### Specifications

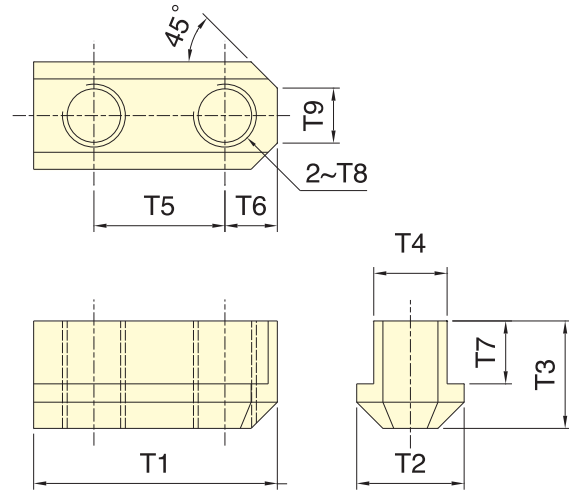
Collet	Max. Chucking Capacity mm			d	D	D1	L	Matching Collet Chuck
	Round	Hexagom	Square					
161E	3~26	4~22	4~18	32	45	34	75	CL-26, CL-26A4
163E	3~30	4~26	4~20	35	48	38	80	CL-30, CL-30A4
171E	3~36	6~32	6~26	42	55	42	94	CL-36, CL-36A5
173E	3~42	6~36	6~29	48	60	50	94	CL-42, CL-42A5, CL-42A6
177E	5~52	8~45	7~36	58	70	60	94	CL52, CL-52A6
185E	5~60	8~52	7~42	66	84	73	110	CL6017, CL-6022, CL-60A6, CL-60A8
193E	20~80	18~69	15~56	90	107	92	130	CL-80, CL-80A8

### Dimensions

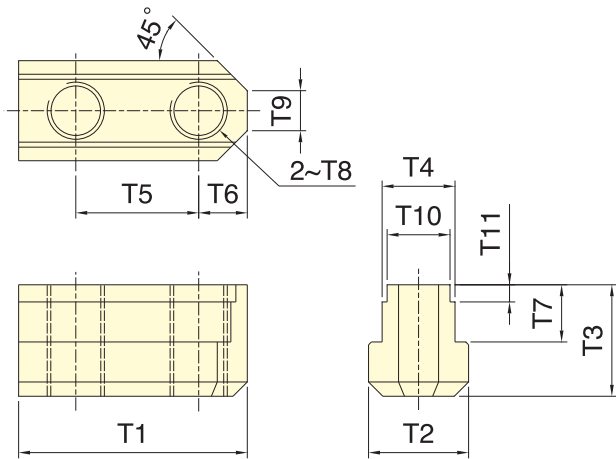
Test Bar D(S,H)	L mm	A DIN	
		Class1	Class2
0.5~1.0	3	0.015	0.015
1.0~1.6	6	0.015	0.020
1.6~3.0	10	0.015	0.020
3.0~6.0	16	0.015	0.020
6.0~10	25	0.015	0.020
10.0~18.0	40	0.020	0.030
18.0~24.0	50	0.020	0.030
24.0~30.0	60	0.020	0.030
30.0~50.0	80	0.030	0.040
50.0~60.0	100	0.030	0.040



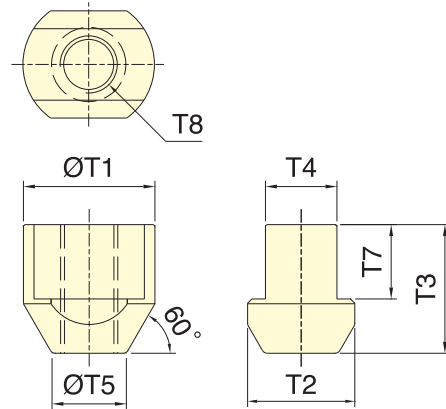
Note : Collets chuck are conformed to DIN6343 Class2.



TN1



TN2

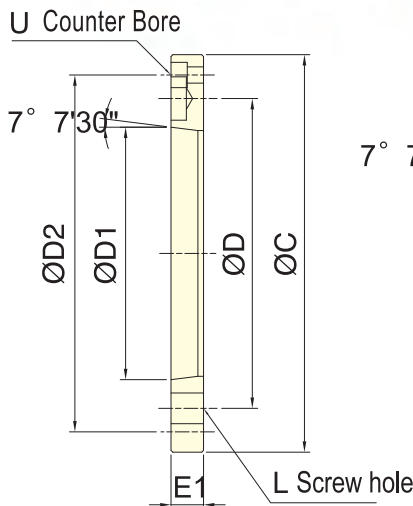


TN3

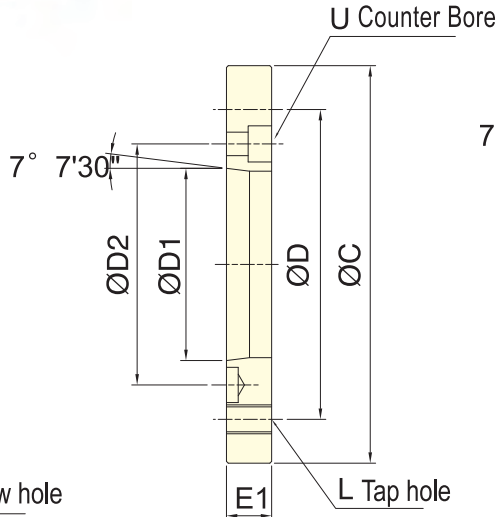
Specifications

\* Subject to technical changes.

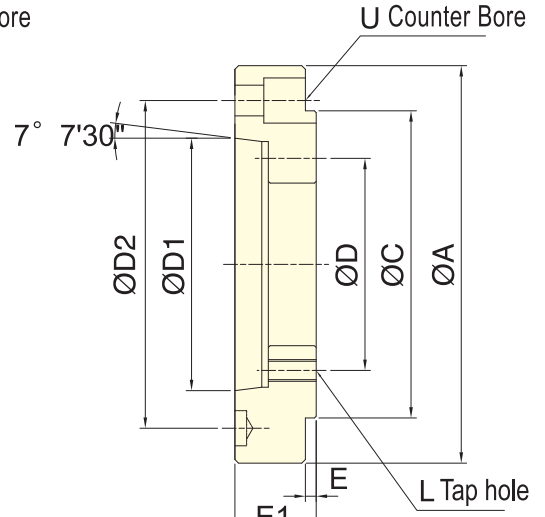
Model	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	Matching Chuck	3 Jaw Weight (kg)
TN1-04	26	15	15	10	14	6	9.5	M8	5	-	-	3H-04, 2H-04, 3H-05, 2H-05, 3L-205, 2L-205, 3P-04, 2P-04, 3P-05, 2P-05, 3M-05, 2M-05	0.06
TN1-06	36	17.5	18.5	12	20	8	11	M10	6	-	-	2H-06, 4H-06, 3H-206, 3L-206, 2L-206, 3P-06, 2P-06, 3M-06, 2M-06	0.15
TN1-08	46.5	20	20.5	14	25	10.5	12	M12	10	-	-	2H-08, 4H-08, 3H-208, 3L-208, 2L-208, 3P-08, 2P-08, 3M-08, 2M-08, 4T-08	0.27
TN1-10	51	22.5	21.5	16	30	11	13	M12	11	-	-	3H-10, 2H-10, 4H-10, 3H-10B, 3L-210, 2L-210, 3P-10, 2P-10, 3M-10, 2M-10, 4T-10, 4T-12	0.36
TN1-12	55.5	29.5	23.5	21	30	12	12	M16	13	-	-	3H-212, 2H-12, 4H-12, 3L-212, 2L-212, 3M-12, 2M-12	0.63
TN2-12	55.5	29.5	28	21	30	12	16.5	M14	13	18	4.5	3P-12, 2P-12, 3V-12, 4T-15	0.63
TN1-15	80	35	39	25.5	43	17	20	M20	14	-	-	3H-15, 2H-15, 4H-15, 3H-15B, 3H-18, 4H-18, 3H-18B, 3L-15, 2L-15, 3P-15, 2P-15, 3P-18, 3V-15, 3V-18	1.53
TN2-15	80	35	39	25.5	43	17	20	M20	14	22	6	3H-15, 2H-15, 4H-15, 3H-15B, 3H-18, 4H-18, 3H-18B, 3L-15, 2L-15, 3P-15, 2P-15, 3P-18, 3V-15, 3V-18	1.5
TN3-21	46	37.5	45	25	26.5	-	26	M20	-	-	-	3H-21B, 3H-24B, 3P-221, 3P-224, 3V-21, 3V-24, 3V-32	1.84



**FL 1**



**FL 2**



**FL 3**

\* Subject to technical changes.

**Specifications**

Model	A	C	D	D1	D2	E	E1	L	U	Remark	Weight (kg)
FL3-04A <sub>2</sub> 4	110	85	70.6	63.513	82.6	8	28	M10	M10	3H-04, 2H-04	1.12
FL3-04A <sub>2</sub> 5	140	85	70.6	82.563	104.8	5.5	32	M10	M10	3H-04, 2H-04	2.28
FL1-05A <sub>2</sub> 4	-	110	82.6	63.513	96	-	15	M10	M6	3H-05, 2H-05, 3L-05, 2L-05	0.65
FL3-05A <sub>2</sub> 5	135	110	82.6	82.563	104.8	6	30	M10	M10	3H-05, 2H-05, 3L-05, 2L-05	1.99
FL1-06A <sub>2</sub> 5	-	140	104.8	82.563	116	-	15 *18	M10	M6	2H-06, 4H-06, 3H-206, *3L-206, *2L-206, 3P-06, 2P-06, 3M-06, 2M-06	0.96
FL3-06A <sub>2</sub> 6	165	140	104.8	106.375	133.4	6	35	M10	M12	2H-06, 4H-06, 3H-206, 3L-206, 2L-206, 3P-06, 2P-06, 3M-06, 2M-06	3.12
FL2-08A <sub>2</sub> 5	-	170	133.4	82.563	104.8	-	23	M12	M10	3H-208, 2H-08, 4H-08, 3L-208, 2L-208, 3P-08, 2P-08, 3M-08, 2M-08, 4T-08	2.70
FL1-08A <sub>2</sub> 6	-	170	133.4	106.375	150	-	17 *23	M12	M6	2H-08, 4H-08, 3H-208, *3L-208, *2L-208, 3P-08, 2P-08, 3M-08, 2M-08, 4T-08	1.55
FL2-10A <sub>2</sub> 6	-	220	171.4	106.375	133.4	-	25	M16	M12	3H-10, 2H-10, 4H-10, 3L-210, 2L-210, 3P-10, 2P-10, 3M-10, 2M-10, 3H-212, 2H-12, 4H-12, 3L-212, 2L-12, 3P-12, 2P-12, 3M-12, 2M-12, 4T-10, 4T-12	5.02
FL1-10A <sub>2</sub> 8	-	220	171.4	139.719	190	-	18	M16	M8	3H-10, 2H-10, 4H-10, 3H-10B, 3L-210, 2L-210, 3P-10, 2P-10, 3M-10, 2M-10, 3H-212, 2H-12, 4H-12, 3L-212, 2L-12, 3P-12, 2P-12, 3M-12, 2M-12, 4T-10, 4T-12	2.73
FL2-15A <sub>2</sub> 8	-	300	235	139.719	171.4	-	33	M20	M16	3H-15, 2H-15, 4H-15, 3L-15, 2L-15, 3P-15, 2P-15, 3M-15, 2M-15, 4T-15, 3H-18, 4H-18, 3P-18	12.52
FL1-15A <sub>2</sub> 11	-	300	235	196.869	260	-	22	M20	M10	3H-212, 3H-15, 2H-15, 4H-15, 3L-15, 2L-15, 3P-15, 2P-15, 3M-15, 2M-15, 4T-15, 3H-18, 4H-18, 3P-18	6.03
FL2-21A <sub>2</sub> 8	-	380	330.2	139.719	171.4	-	27	M24	M16	3P-221, 4P-21, 3P-224, 4P-24	22.05
FL2-21A <sub>2</sub> 11	-	380	330.2	196.869	235	-	27	M24	M20	3P-221, 4P-21, 3P-224, 4P-24	16.28
FL1-21A <sub>2</sub> 15	-	380	330.2	285.775	330.2	-	27	M24	M12	3H-15B, 3H-18B, 3H-21B, 3P-21, 4P-21, 3P-24, 4P-24	8.60
FL2-40A <sub>2</sub> 15	-	520	463.6	285.775	330.2	-	40	M24	M24	3H-24B	43.26
FL1-40A <sub>2</sub> 20	-	520	463.6	412.775	463.6	-	27	M24	M12	3H-24B	13.55

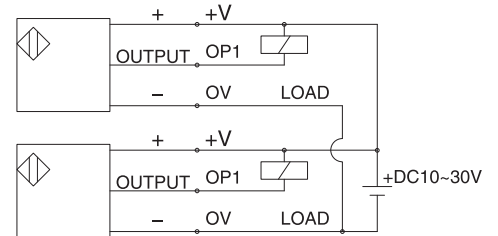


■ The proximity switch is optional.

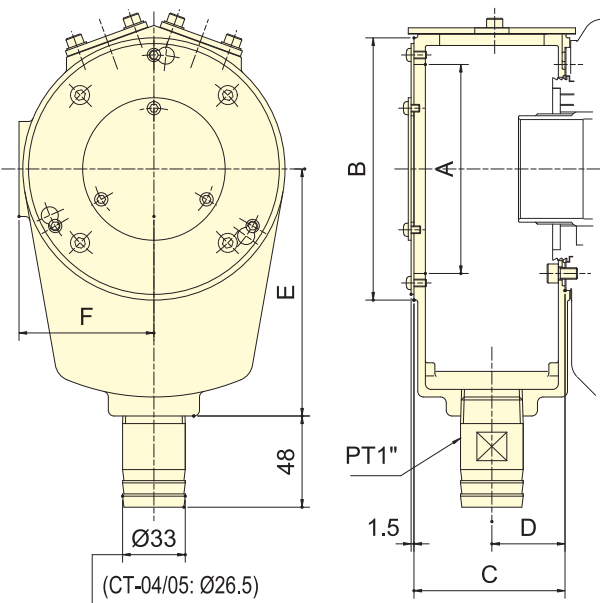
Model	Power supply	Switching cap.	Output type
IA12DLF02N03219 (CARLO)	DC 10/30V	200mA	NPN

■ Terminal Connections

Model	IA12DLF02N03219 (CARLO)
OP2	BLACK
+V	BROWN
OV	BLUE
OP1	BLACK

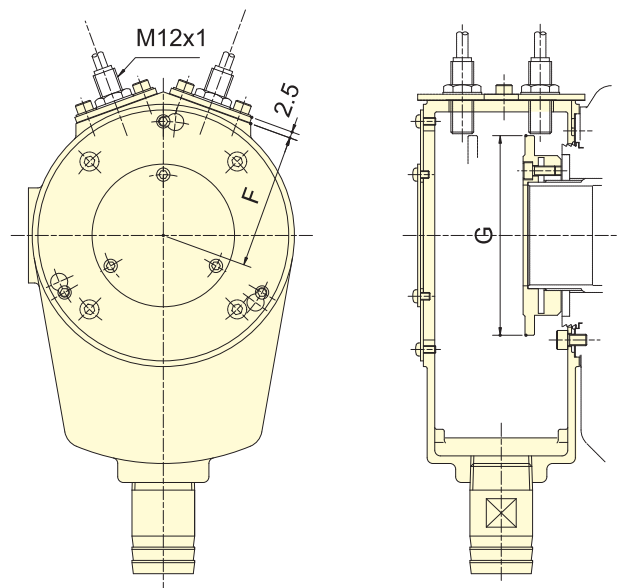


CT



Coolant Collector

CT-S



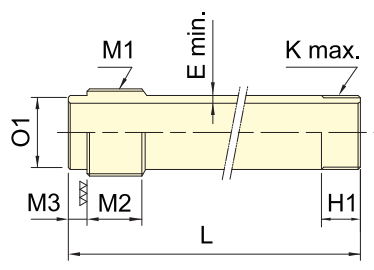
Coolant Collector with Detecting Ring

\* Subject to technical changes.

■ Specifications

Model	A	B	C	D	E	F	G	Weight (kg)		Matching cyl.
								CT	CT-S	
CT-04/CT-04S	87	110	60	29	110	57	79	0.9	1.1	TH-A428
CT-05/CT-05S	87	110	60	29	110	57	84	0.9	1.1	TH-A536, TK-A528, TK-A533
CT-06/CT-06S	100	125	74	36	120	64.5	94	1.2	1.6	TK-C643,TK-A646,TK-B646, TK-C646,TK-646A
CT-08/CT-08S	110	138	80	39	130	71	105	1.3	1.8	TK-B846, TK-A853, TK-B853
CT-K10/CT-K10S	158	185	88	43	160	94.5	145	1.9	2.6	TK-1068, TK-A1075
CT-K10/CT-K1078S	158	185	88	43	160	94.5	145	1.9	2.6	TK-1078
CT-12/CT-12S	158	185	88	43	160	94.5	145	1.9	2.6	TK-1287, TK-A1291
CT-15/CT-15S	206	235	100	50	210	121	196	3.1	4.3	TK-A1511, TK-A1512
CT-21/CT-21S	226	255	100	50	210	131	210	3.3	4.6	TK-2114
CT-24/CT-24S	250	270	100	50	230	154	248	3.5	5.5	TK-2416, TK-2416L
CT-28/CT-28S	310	330	100	50	260	181	305	4.3	7.2	TK-2820

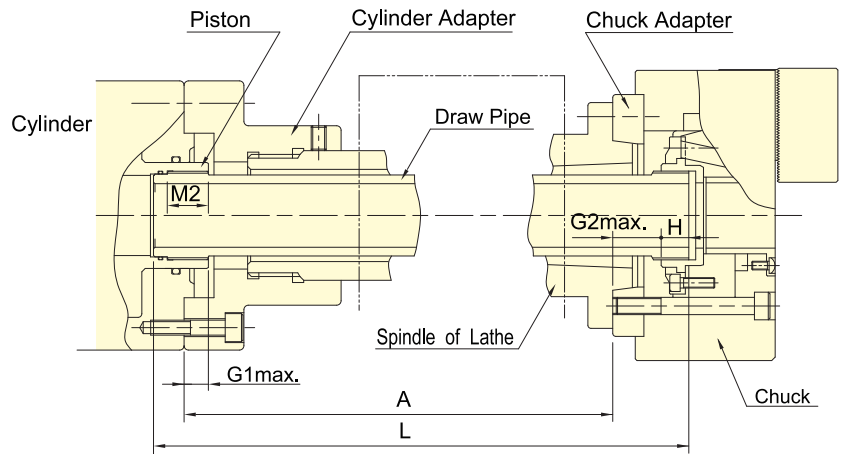




**Detail of Draw Pipe**  
 $L=A+G2max.+H-G1max.+M2+M3$

3H-04 can work with TH-428.

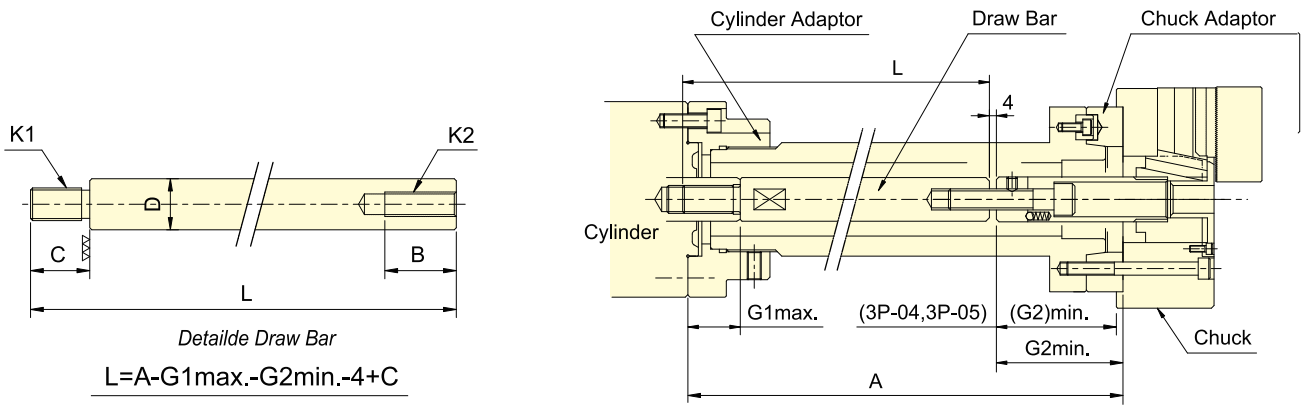
Note: To calculate the draw-bar length of 2H, 4H as 3H.



\* Subject to technical changes.

Chuck type	Cylinder type	G1 max.	H	M3	M2	G2 max.	M1	H1	O1(f7)	K max.	E min.	L	
3H-04A4	TK-A533	12	14.5	13	25	31.5	M38x1.5	25	35	-0.025 -0.050	M32x1.5	3.5	A+59+13
3H-05A4	TK-A533	12	17	13	25	16	M38x1.5	25	35	-0.025 -0.050	M40x1.5	3.5	A+46+13
3H-10A6	TK-A1075	25	20.5	15	35	33.5	M85x2	30	80	-0.030 -0.060	M85x2	5	A+64+15
3H-10A8	TK-A1075	25	20.5	15	35	26.5	M85x2	30	80	-0.030 -0.060	M85x2	5	A+57+15
3H-15A8	TK-A1512	30	33	15	45	44	M130x2	45	125	-0.043 -0.083	M130x2	5	A+92+15
3H-15A11	TK-A1512	30	33	15	45	33	M130x2	45	125	-0.043 -0.083	M130x2	5	A+81+15
3H-18A11	TK-A1512	30	33	15	45	33	M130x2	45	125	-0.043 -0.083	M130x2	5	A+81+15

Chuck type	Cylinder type	G1 max.	H	M3	M2	G2 max.	M1	H1	O1(f7)	K max.	E min.	L	
3H-204A5	TK-A528	12	17.5	10	25	18.5	M38x1.5	25	35	-0.025 -0.050	M40x1.5	5	A+49+12
3H-205A5	TK-A528	12	17	10	25	16	M38x1.5	25	35	-0.025 -0.050	M45x1.5	5	A+46+13
3H-206A5	TK-A853	20	14	12	30	28	M60x2	25	55	-0.030 -0.060	M60x2	5	A+52+13
3H-208A6	TK-1068	25	16.5	12	35	33.5	M75x2	25	70	-0.030 -0.060	M75x2	5	A+55+12
3H-10BA8	TK-12847	30	20.5	12	35	26.5	M95x2	30	95	-0.036 -0.071	M95x2	5	A+52+12
3H-15BA15	TK-2114	35	33	17	45	38	M155x2	45	145	-0.043 -0.083	M155x3	5	A+81+17
3H-18BA15	TK-2416	35	33	17	45	45	M180x3	45	170	-0.043 -0.083	M175x3	5	A+88+17
3H-21BA15	TK-2820	51	33	17	45	38	M220x3	45	210	-0.050 -0.096	M190x3	5	A+65+17
3H-24BA15	TK-2820	51	34	17	45	58	M220x3	45	210	-0.050 -0.096	M215x3	5	A+86+17
3H-24BA20	TK-2820	51	34	17	45	45	M220x3	45	210	-0.050 -0.096	M215x3	5	A+73+17



\* Subject to technical changes.

Chuck type	Cylinder type	B	C	D	G1 max.	G2 min.	K1	K2	L
3P-04	RK-75(N)/RA-130	30	30/20	30/25	45	3	M20x2.5/M16x2	M10x1.5	A-22/A-32
3P-05	RK-75(N)/RA-130	40	30/20	30/25	45	-6	M20x2.5/M16x2	M12x1.75	A-13/A-23
3P-06	RK-100(N)/RA-170	40	30/25	30/25	45	81.5	M20x2.5/M16x2	M16x2	A-101/A-106
3P-08	RK-125(N)/RA-220	40	40/30	35/30	50	106	M24x3/M20x2.5	M20x2.5	A-120/A-130
3P-10	RK-125(N)/RA-220	40	40/30	35/30	50	133	M24x3/M20x2.5	M20x2.5	A-147/A-157
3P-12	RK-150(N)/RA-270	40	40/35	45/35	55	133	M30x3.5/M24x3	M20x2.5	A-152/A-157
3P-15	RK-200(N)	60	55	55	70	69	M36x4	M30x3.5	A-88
3P-18	RK-200(N)	60	55	55	70	57	M36x4	M30x3.5	A-76
3P-221	RK-200(N)	60	55	55	70	62	M36x4	M30x3.5	A-81
3P-224	RK-200(N)	60	55	55	70	62	M36x4	M30x3.5	A-81

Note: To calculate the draw-bar length of 2P as 3P.

Chuck type	Cylinder type	B	C	D	G1 max.	G2 min.	K1	K2	L
3M-05	RK-75(N)	40	30	30	45	-2	M20x2.5	M12x1.75	A-17
3M-06	RK-100(N)	40	30	30	45	81.5	M20x2.5	M16x2	A-101
3M-08	RK-125(N)	40	40	35	50	106	M24x3.0	M20x2.5	A-120
3M-10	RK-125(N)	40	40	35	50	135	M24x3.0	M20x2.5	A-148
3M-12	RK-150(N)	50	40	45	55	40	M30x3.5	M24x3	A-59

Note: To calculate the draw-bar length of 2M as 3M.